UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/701,844	11/04/2003	W. James Jackson	2479.0040002/EJH/C-K	3069

26111 7590 03/02/2007

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER	
BASKAR, PADMAVATHI	
ART UNIT	**PAPER NUMBER**
1645	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/701,844	JACKSON ET AL.	
	Examiner	Art Unit	
	Padmavathi v. Baskar	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *29-59* is/are pending in the application.

4a) Of the above claim(s) *28,31,33-35,42-47,50-57 and 59* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *29,30,36-41 and 58* is/are rejected.

7)☒ Claim(s) *33* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Amendment

1. The amendment filed 11/22/06 in response to the Office Action of 6/22/06 is acknowledged and has been entered

Status of claims

2. Claims 1-25, and 26-27 have been canceled.

Claims 28 has been amended.

New claims 29-59 have been added.

Claims 28, 29-52 are pending in the application .

Claims 28, 31, 33, 34, 35, 42-47, 50-57 and 59 have been withdrawn from further consideration by the examiner under 37 CFR 1.142(b) as being drawn to non-elected inventions.

Claims 29, 30, 33, 36-41 and 58 are currently under examination.

3. All claim rejections of record are moot as the prosecuted claims 26-27 are cancelled.

Claim Rejections - 35 USC 112, first paragraph

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 29, 33, 36-41 and 58 are rejected under 35 USC 112, first paragraph, as the specification does not contain a written description support of the claimed invention. This is a new matter rejection.

Claim 33 is drawn to the antibody or fragment thereof of claim 29, wherein said amino acid sequence is encoded by SEQ ID NO: 1. Therefore it is assumed for examination purposes that it reads on an amino acid sequence at least 95% identical to amino acids 29-1012 of SEQ ID NO: 2 encoded by SEQ ID NO:1, which reads on not only truncation of amino acids 29-1012 but also reads on undefined deletions within amino acids 29-1012.

The limitation "antibody binding to a polypeptide consisting essentially of an amino acid sequence at least 95% identical to amino acids 29-1012 of SEQ.ID.NO:2 "has no clear

support in the specification and the claims as originally filed. Applicant points to support for the newly added limitations throughout the specification. Especially support for claims 29-57 can be found at page 11, line 17-page 12, line 24 and page 24, line 13-page 25, line 26. A review of the suggested support reveals that it is drawn to antisera raised against immunogenic composition and antisera raised against HMW protein or a fragment or analogue thereof but the citation does not support antibodies binding to polypeptides consisting essentially of an amino acid sequence at least 95% identical to amino acids 29-1012 of SEQ.ID.NO:2. The suggested support has been considered but has not been found persuasive because the subject matter claimed in claims 29, 36-41 and 58 broadens the scope of the invention as originally disclosed in the specification.

6. Claims 29, 33 36-41 and 58 are rejected under 35 U.5.C. 112, first paragraph , as lacking an adequate written description in the specification.

Claim 33 is drawn to the antibody or fragment thereof of claim 29, wherein said amino acid sequence is encoded by SEQ ID NO: 1. Therefore it is assumed for examination purposes that it reads on an amino acid sequence at least 95% identical to amino acids 29-1012 of SEQ ID NO: 2 encoded by SEQ ID NO:1, which reads on not only truncation of amino acids 29-1012 but also reads on undefined deletions within amino acids 29-1012.

Claims are drawn to an isolated antibody or antigen fragments that specifically binds a polypeptide consisting essentially of an amino acid sequence of at least 95% identical to amino acids 29-1012 of SEQ.ID.NO: 2, said antibody is a monoclonal or polyclonal. Although drawn to DNA arts, the findings in University of California v. Eli Lilly and Co., 119 F.3d 1559, 43 USPQ2d 1398 (Fed. Cir. 1997) and Enzo Biochem, Inc. V. Gen-Probe Inc. are relevant to the instant claims. The Federal Circuit addressed the application of the written description requirement to DNA-related inventions in University of California v. Eli Lilly and Co., 119 F.3d 1559, 43 USPQ2d 1398 (Fed. Cir. 1997). The court stated that "[a] written description of an invention involving a chemical genus, like a description of a chemical species, 'requires a precise definition, such as by structure, formula, [or] chemical name,' of the claimed subject matter sufficient to distinguish it from other materials." Id. At 1567, 43 USPQ2d at 1405. The court also stated that a

generic statement such as "vertebrate insulin cDNA" or "mammalian insulin cDNA" without more, is not an adequate written description of the genus because it does not distinguish the genus from others, except by function. It does not specifically define any of the genes that fall within its definition. It does not define any structural features commonly possessed by members of the genus that distinguish them from others. One skilled in the art therefore cannot, as one can do with a fully described genus, visualize or recognize the identity of the members of the genus. A definition by function, as we have previously indicated, does not suffice to define the genus because it is only an indication of what the gene does, rather than what it is.

Id. At 1568, 43 USPQ2d at 1406. The court concluded that "naming a type of material generally known to exist, in the absence of knowledge as to what that material consists of, is not a description of that material." Id.

Finally, the court addressed the manner by which a genus of cDNAs might be described. "A description of a genus of cDNAs may be achieved by means of a recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus or of a recitation of structural features common to the members of the genus, which features constitute a substantial portion of the genus." Id.

The Federal Circuit has recently clarified that a DNA molecule can be adequately described without disclosing its complete structure. See Enzo Biochem, Inc. V. Gen-Probe Inc., 296 F.3d 1316, 63 USPQ2d 1609 (Fed. Cir. 2002). The Enzo court adopted the standard that "the written description requirement can be met by 'show[ing] that an invention is complete by disclosure of sufficiently detailed, relevant identifying characteristics ....i.e., complete or partial structure, other physical and/or chemical properties, functional characteristics when coupled with a known or disclosed correlation between function and structure, or some combination of such characteristics. " Id. At 1324, 63 USPQ2d at 1613 (emphasis omitted, bracketed material in original).

The inventions at issue in Lilly and Enzo were DNA constructs per se, the holdings of those cases are also applicable to claims such as those at issue here. A disclosure that does not adequately describe a product itself logically cannot adequately describe using that product.

Thus, the instant specification may provide an adequate written description of the an isolated antibody or antigen fragments that specifically binds a polypeptide consisting essentially of an amino acid sequence of at least 95% identical to amino acids 29-1012

of SEQ.ID.NO: 2, said antibody is a monoclonal or polyclonal per Lilly by structurally describing a representative number of an isolated antibody or antigen fragments that specifically binds a polypeptide consisting essentially of an amino acid sequence of at least 95% identical to amino acids 29-1012 of SEQ.ID.NO: 2, "structural features common to the members of the genus, which features constitute a substantial portion of the genus." Alternatively, per Enzo, the specification can show that the claimed invention is complete "by disclosure of sufficiently detailed, relevant identifying characteristics, functional characteristics when coupled with a known or disclosed correlation between function and structure, or some combination of such characteristics."

In this case, the specification does not describe the an isolated antibody or antigen fragments that specifically binds a polypeptide consisting essentially of an amino acid sequence of at least 95% identical to amino acids 29-1012 of SEQ.ID.NO: 2, said antibody is a monoclonal or polyclonal in a manner that satisfies either the Lilly or Enzo standards. The specification does not provide the complete structure of an isolated antibody or antigen fragments that specifically binds a polypeptide consisting essentially of an amino acid sequence of at least 95% identical to amino acids 29-1012 of SEQ.ID.NO: 2 nor does the specification provide any partial structure of such antibody, nor any physical or chemical characteristics of said antibody nor any functional characteristics coupled with a known or disclosed correlation between structure and function. Although the specification discloses a single isolated antibody or antigen binding fragment thereof or antiserum which specifically bind to the polypeptide consisting of amino acid sequence set forth as SEQ.ID.NO: 2 this does not provide a description of an isolated antibody or antigen fragments that specifically binds a polypeptide consisting essentially of an amino acid sequence of at least 95% identical to amino acids 29-1012 of SEQ.ID.NO: 2 that would satisfy the standard set out in Enzo. The specification also fails to describe an isolated antibody or antigen fragments that specifically binds a polypeptide consisting essentially of an amino acid sequence of at least 95% identical to amino acids 29-1012 of SEQ.ID.NO: 2 by the test set out in Lilly. The specification describes only a single isolated antibody. Therefore, it necessarily fails to describe a "representative number" of such species. In addition, the specification also does not describe "structural features common to the members of the genus, which features constitute a substantial portion of the genus."

Thus, the specification does not provide an adequate written description of an isolated antibody or antigen fragments that specifically binds a polypeptide consisting essentially of an amino acid sequence of at least 95% identical to amino acids 29-1012 of SEQ.ID.NO: 2 that is required to practice the claimed invention. Since the specification fails to adequately describe the product to which the claimed an isolated antibody or antigen fragments that specifically binds a polypeptide consisting essentially of an amino acid sequence of at least 95% identical to amino acids 29-1012 of SEQ.ID.NO: 2, it also fails to comply with 35 USC 112, first paragraph because it is not supported by an adequate written description in the specification. Thus these claims are also not adequately supported by an adequate written description.

Applicant argues 11/22/06 that fragments of seq.id.no:2 are described and therefore, applicant is in possession of the claimed invention.

The argument has been considered but has not been found persuasive because although the specification provides written description of antibody or antigen binding fragment thereof that binds to a polypeptide consisting of SEQ.ID.NO: 2this does not provide a written description for an isolated antibody or antigen fragments that specifically binds a polypeptide consisting essentially of an amino acid sequence of at least 95% identical to amino acids 29-1012 of SEQ.ID.NO: 2. some of the arguments (fragments etc on page 13 of the response filed on 11/22/06) are relevant to the instant rejection as discussed above.

7. Claims 29, 33, 36-41 and 58 are rejected under 35 U.5.C. 112, first paragraph, because the specification, while being enabling for isolated antibody or antigen binding fragment thereof or antiserum which specifically bind to the polypeptide consisting of amino acid sequence set forth as SEQ.ID.NO: 2 does not reasonably provide enablement for an isolated antibody or antiserum which specifically bind to a polypeptide consisting essentially of an amino acid sequence of at least 95% identical to amino acids 29-1012 of SEQ.ID.NO: 2 (considered as variant of SEQ.ID.NO:2). The specification fails to provide an enabling disclosure for the full scope of claimed antibody that binds to variants SEQ.ID.NO: 2 because it fails to provide any guidance regarding how to make and use claimed antibody that bind to unknown variants.

Claims are drawn to an isolated antibody or antigen fragments that specifically binds a polypeptide consisting essentially of an amino acid sequence of at least 95% identical to amino acids 29-1012 of SEQ.ID.NO: 2, said antibody is a monoclonal or polyclonal, said Claim 33 is drawn to the antibody or fragment thereof of claim 29, wherein said amino acid sequence is encoded by SEQ ID NO: 1. =
Claim 33 is drawn to the antibody or fragment thereof of claim 29, wherein said amino acid sequence is encoded by SEQ ID NO: 1. Therefore it is assumed for examination purposes that it reads on an amino acid sequence at least 95% identical to amino acids 29-1012 of SEQ ID NO: 2 encoded by SEQ ID NO:1, which reads on not only truncation of amino acids 29-1012 but also reads on undefined deletions within amino acids 29-1012.

The instant claims are evaluated for enablement based on the Wands analysis. Many of the factors regarding undue experimentation have been summarized in *re Wands*, 858 F.2d 731,8 USPQ2d 1400 (Fed.Circ.1988) as follows:

(1) the nature of the invention, (2) the state of the prior art, (3) the predictability or lack thereof in the art; (4) the amount of direction or guidance present, (5) the presence or absence of working examples, (6) the quantity of experimentation necessary, (7) the relative skill of those in the art, and (8) the breadth of the claims.
The nature of the disclosed invention is an isolated antibody that binds to a recombinant polypeptide from *C.trachomatis*. The protein is set forth as SEQ ID NO: 2 contains 1012 amino acids. The specification discloses the claimed polypeptide SEQ.ID.NO: 2 with an adjuvant is used to raise antisera to identify only *C.trachomatis* infection. However, the specification fails to disclose instantly claimed antibodies that bind to variants of SEQ.ID.NO 2. The state of the art prior art in *C.trachomatis* is devoid of antibody that specifically binds to variants of SEQ.ID.NO:2, i.e., antibodies that bind to unknowns because the effects of alterations in the 1012 amino acids will strongly affect the structure of the polypeptide and thus it cannot be predicted which antibodies will bind.
One cannot extrapolate the teaching of the specification to the scope of the claims because the claims as written are drawn to antibody to a polypeptide consisting essentially of an amino acid sequence of at least 95% identical to amino acids 29-1012 of SEQ.ID.NO: 2 (considered as variant of SEQ.ID.NO:2). Neither the specification nor

the art of record define which amino acid residues are critical for binding to the claimed antibody . As drawn to antibodies, Bowie et al (Science, 1990, 257:1306-1310), teaches that an amino acid sequence encodes a message that determines the shape of a protein and determines the ability of said protein to fold into unique three-dimensional structures that allows them to function. Bowie further teaches that certain positions in the sequence are critical to the three dimensional structure/function relationship and these regions can tolerate only conservative substitutions or no substitutions (p. 1306, cols 1 and 2). Clearly, the three dimension structure of a protein is critical to the production of antibodies given the teaching of Herbert et al (The Dictionary of Immunology, Academic Press, 3rd Edition, London, 1985, pages 58-59). Herbert et al who specifically teach that an epitope is the region on an antigen molecule to which antibody specifically binds. B cell epitopes on protein antigens are of variable size comprising up to about 20 amino acids. Antibodies bind in a more or less exact three dimensional fit with an epitope. This may be formed from residues on different regions of a protein antigen molecule which, in the native state, are closely apposed due to protein folding. Thus the three-dimensional structure of the protein molecule may be essential for antibody binding. (p. 58). Clearly the effects of the undefined alteration of about 50 of the amino acids of the claimed molecule on the structure of the molecule cannot be predicted and given the teachings set forth above, it is clear that one could not predictably identify an antibody that will bind to the undefined structure claimed because, in particular, the art recognizes (see Bowie above) that it is the protein sequence that determines the three dimensional shape of a protein and Herbert et al specifically state that antibodies bind in a more or less exact three dimensional fit and suggests that the three-dimensional structure of the protein molecule may be essential for antibody binding.

Again, which antibodies will bind to the undefined structure of the polypeptide can not be predicted.

Finally, as drawn to claims 29, 33, 36-41 and 58 , the claims are drawn to antibody that binds a polypeptide consisting essentially of an amino acid sequence at least 95% identical to amino acids 29-1012.SEQ ID NO:2, thus the claims are claiming the an antibody that binds to an unknown structure . The following teaching of the court as set out in Noelle also clearly applies to the instant claimed invention. The court found that "Noelle did not provide sufficient support for the claims to the human CD40CR antibody in his '480 application because Noelle failed to disclose the structural elements of human

CD40CR antibody or antigen in his earlier '799 application. Noelle argues that because antibodies are defined by their binding affinity to antigens, not their physical structure, he sufficiently described human CD40CR antibody by stating that it binds to human CD40CR antigen. Noelle cites Enzo Biochem II for this proposition. This argument fails, however, because Noelle did not sufficiently describe the human CD40CR antigen at the time of the filing of the '799 patent application. In fact, Noelle only described the mouse antigen when he claimed the mouse, human, and genus forms of CD40CR antibodies by citing to the ATCC number of the hybridoma secreting the mouse CD40CR antibody. If Noelle had sufficiently described the human form of CD40CR antigen, he could have claimed its antibody by simply stating its binding affinity for the "fully characterized" antigen. Noelle did not describe human CD40CR antigen. Therefore, Noelle attempted to define an unknown by its binding affinity to another unknown. As a result, Noelle's claims to human forms of CD40CR antibody found in his '480 application cannot gain the benefit of the earlier filing date of his '799 patent application. Moreover, Noelle cannot claim the genus form of CD40CR antibody by simply describing mouse CD40CR antigen". *Randolph J. Noelle v Seth Lederman, Leonard Chess and Michael J. Yellin* (CAFC, 02-1187, 1/20/2004). Given that antibodies are defined by their binding affinity to antigen, given that the instantly claimed antibody is to an unknown and undefined antigen for the reasons set forth above, it is clear that like Noelle, the claim is attempting to define an unknown by its binding affinity to another unknown and applicant has not taught how to either make or use the claimed invention.
The specification provides insufficient guidance with regard to these issues and provides no working examples which would provide guidance to one skilled in the art and no evidence has been provided which would allow one of skill in the art to predictably make or identify the claimed antibodies with a reasonable expectation of success. For the above reasons, it appears that undue experimentation would be required to practice the claimed invention.

Some of applicant's arguments 11/22/06 drawn to the rejection of claims 41 and 58 are relevant to the instant rejection

The argument has been considered but has not been found persuasive because although the specification discloses antibody or antigen binding fragment thereof that binds to a polypeptide consisting of SEQ.ID.NO: 2 this does not provide support for an isolated antibody or antigen fragments that specifically binds a polypeptide consisting

essentially of an amino acid sequence of at least 95% identical to amino acids 29-1012 of SEQ.ID.NO: 2 as discussed in the instant rejection.

Claim Rejections - 35 USC 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:
A person shall be entitled to a patent unless --

e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 29 36, 37 and 58 are rejected under 35 U.S.C. 102(e) as being anticipated by Skeiky U.S.Patent: 6565856.

Claims are drawn to an isolated antibody or antigen fragments or antiserum (claim 58) that specifically binds a polypeptide consisting essentially of an amino acid sequence of at least 95% identical to amino acids 29-1012 of SEQ.ID.NO: 2 (claims 29-30) , said antibody is a monoclonal or polyclonal (claims 36, 37), said antibody

U.S.Patent: 6565856 discloses an isolated antibody, monoclonal or polyclonal (see column 19, lines 23-28) that specifically binds to a polypeptide consisting essentially of an amino acid sequence at least 95% identical to amino acids 29-1012 of SEQ.ID.NO: 2 , which is a fragment of SEQ.ID.NO:190 from region 50-1000 and is 100% identical to SEQ ID NO:2 from amino acid 50-1000 (column 11, line 47-48 and see the sequence alignment) . The disclosed antibodies anticipated the claims 29, 36-37 and 58.

```
US-09-598-419-190
; Sequence 190, Application US/09598419
; Patent No. 6565856
; GENERAL INFORMATION:
;  APPLICANT: Skeiky, Yasir A.W.
;  APPLICANT: Scholler, John
;  TITLE OF INVENTION: COMPOUNDS AND METHODS FOR TREATMENT AND
;  TITLE OF INVENTION: DIAGNOSIS OF CHLAMYDIAL INFECTION
;  FILE REFERENCE: 210121.469C6
```

```
;  CURRENT APPLICATION NUMBER: US/09/598,419
;  CURRENT FILING DATE: 2000-06-20
;  NUMBER OF SEQ ID NOS: 357
;  SOFTWARE: FastSEQ for Windows Version 3.0/4.0
; SEQ ID NO 190
;   LENGTH: 1006
;   TYPE: PRT
;   ORGANISM: Chlamydia
US-09-598-419-190

  Query Match             96.6%;  Score 5090;  DB 2;  Length 1006;
  Best Local Similarity   99.7%;  Pred. No. 0;
  Matches  979;  Conservative    2;  Mismatches    1;  Indels    0;
Gaps    0;

Qy         31
MVPQGIYDGETLTVSFPYTVIGDPSGTTVFSAGELTLKNLDNSIAALPLSCFGNLLGSFT 90

|:||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         25
MIPQGIYDGETLTVSFPYTVIGDPSGTTVFSAGELTLKNLDNSIAALPLSCFGNLLGSFT 84

Qy         91
VLGRGHSLTFENIRTSTNGAALSNSAADGLFTIEGFKELSFSNCNSLLAVLPAATTNKGS 150

||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         85
VLGRGHSLTFENIRTSTNGAALSNSAADGLFTIEGFKELSFSNCNSLLAVLPAATTNKGS 144

Qy        151
QTPTTTSTPSNGTIYSKTDLLLLNNEKFSFYSNLVSGDGGAIDAKSLTVQGISKLCVFQE 210

||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        145
QTPTTTSTPSNGTIYSKTDLLLLNNEKFSFYSNLVSGDGGAIDAKSLTVQGISKLCVFQE 204

Qy        211
NTAQADGGACQVVTSFSAMANEAPIAFVANVAGVRGGGIAAVQDGQQGVSSSTSTEDPVV 270

||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        205
NTAQADGGACQVVTSFSAMANEAPIAFVANVAGVRGGGIAAVQDGQQGVSSSTSTEDPVV 264

Qy        271
SFSRNTAVEFDGNVARVGGGIYSYGNVAFLNNGKTLFLNNVASPVYIAAKQPTSGQASNT 330

||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        265
SFSRNTAVEFDGNVARVGGGIYSYGNVAFLNNGKTLFLNNVASPVYIAAKQPTSGQASNT 324

Qy        331
SNNYGDGGAIFCKNGAQAGSNNSGSVSFDGEGVVFFSSNVAAGKGGAIYAKKLSVANCGP 390

||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        325
SNNYGDGGAIFCKNGAQAGSNNSGSVSFDGEGVVFFSSNVAAGKGGAIYAKKLSVANCGP 384
```

```
Qy        391
VQFLRNIANDGGAIYLGESGELSLSADYGDIIFDGNLKRTAKENAADVNGVTVSSQAISM 450

||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        385
VQFLRNIANDGGAIYLGESGELSLSADYGDIIFDGNLKRTAKENAADVNGVTVSSQAISM 444

Qy        451
GSGGKITTLRAKAGHQILFNDPIEMANGNNQPAQSSKLLKINDGEGYTGDIVFANGSSTL 510

||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        445
GSGGKITTLRAKAGHQILFNDPIEMANGNNQPAQSSKLLKINDGEGYTGDIVFANGSSTL 504

Qy        511
YQNVTIEQGRIVLREKAKLSVNSLSQTGGSLYMEAGSTWDFVTPQPPQQPPAANQLITLS 570
                ||||||||||||||||||||||||||||||||||
||||||||||||||||||
Db        505
YQNVTIEQGRIVLREKAKLSVNSLSQTGGSLYMEAGSTLDFVTPQPPQQPPAANQLITLS 564

Qy        571
NLHLSLSSLLANNAVTNPPTNPPAQDSHPAVIGSTTAGSVTISGPIFFEDLDDTAYDRYD 630

||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        565
NLHLSLSSLLANNAVTNPPTNPPAQDSHPAVIGSTTAGSVTISGPIFFEDLDDTAYDRYD 624

Qy        631
WLGSNQKINVLKLQLGTKPPANAPSDLTLGNEMPKYGYQGSWKLAWDPNTANNGPYTLKA 690

||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        625
WLGSNQKINVLKLQLGTKPPANAPSDLTLGNEMPKYGYQGSWKLAWDPNTANNGPYTLKA 684

Qy        691
TWTKTGYNPGPERVASLVPNSLWGSILDIRSAHSAIQASVDGRSYCRGLWVSGVSNFFYH 750

||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        685
TWTKTGYNPGPERVASLVPNSLWGSILDIRSAHSAIQASVDGRSYCRGLWVSGVSNFFYH 744

Qy        751
DRDALGQGYRYISGGYSLGANSYFGSSMFGLAFTEVFGRSKDYVVCRSNHHACIGSVYLS 810

||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        745
DRDALGQGYRYISGGYSLGANSYFGSSMFGLAFTEVFGRSKDYVVCRSNHHACIGSVYLS 804

Qy        811
TQQALCGSYLFGDAFIRASYGFGNQHMKTSYTFAEESDVRWDNNCLAGEIGAGLPIVITP 870

||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        805
TQQALCGSYLFGDAFIRASYGFGNQHMKTSYTFAEESDVRWDNNCLAGEIGAGLPIVITP 864
```

```
Qy          871
SKLYLNELRPFVQAEFSYADHESFTEEGDQARAFKSGHLLNLSVPVGVKFDRCSSTHPNK 930

||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          865
SKLYLNELRPFVQAEFSYADHESFTEEGDQARAFKSGHLLNLSVPVGVKFDRCSSTHPNK 924

Qy          931
YSFMAAYICDAYRTISGTETTLLSHQETWTTDAFHLARHGVVVRGSMYASLTSNIEVYGH 990

||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          925
YSFMAAYICDAYRTISGTETTLLSHQETWTTDAFHLARHGVVVRGSMYASLTSNIEVYGH 984

Qy          991 GRYEYRDASRGYGLSAGSRVRF 1012
                ||||||||||||||||||:|||
Db          985 GRYEYRDASRGYGLSAGSKVRF 1006
```

Status of Claims

8. Claim 30 appears as being allowable but dependent upon a rejected claim.

Conclusion

9. Papers related to this application may be submitted to Group 1600, AU 1645 by facsimile transmission. Papers should be transmitted via the PTO Fax Center, which receives transmissions 24 hours a day and 7 days a week. The transmission of such papers by facsimile must conform to the notice published in the Official Gazette, 1096 OG 30, November 15, 1989. The Right Fax number is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PMR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PMR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PMR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Padma Baskar Ph.D., whose telephone number is ((571) 272-0853. A message may be left on the Examiner's voice mail system. The Examiner can normally be reached on Monday to Friday from 6.30 a.m. to 4.00 p.m except First Friday of each bi-week.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Siew can be reached on (571) 272-0787. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1600

Padma Baskar Ph.D.